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A NEW PRIMATE FROM THE TORREJON MIDDLE PALEOCENE OF THE SAN JUAN BASIN, NEW MEXICO

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Recent review of Paleocene materials from the San Juan Basin of New Mexico, that had been set aside for further study, disclosed the presence of certain forms new to the Torrejon fauna. One of these is a moderately large primate, which seems, among other Paleocene forms, to be most closely related to *Paromomys*, first described by Gidley (1923) from the Fort Union beds in Montana, and further investigated by Simpson (1937 and 1955).

Primates had not been known from the Torrejon beds of the Nacimiento formation in New Mexico until reported from the Angel Peak basin by R. W. Wilson (1951 and 1956). These were cited (1956) only as "*Palaechthon*?, n. sp." and "phenacolemurid, n. gen. and sp." without description, but mentioned as found in the *Deltatherium* or lower zone of the Torrejon. Primate remains found by Franklin Pearce and myself in 1949 were obtained from the upper or *Pantolambda* zone in the Arroyo Torrejon, essentially the type section or area for the middle Paleocene. I have not examined the Angel Peak materials but those from the Arroyo Torrejon would not be referred to *Palaechthon*. Only the single specimen cited as "phenacolemurid" remains in doubt as to the possibility of its representing the form described below.

Family Paromomyidae Simpson, 1940

Torrejonia new genus

Type: Torrejonia wilsoni[1] new species.

Generic characters: Close to *Paromomys* but lower premolars more

[1] Named for Robert W. Wilson who was first to recognize primates in the Torrejon beds.

elongate anteroposteriorly. P_4 with relatively narrower and more elongate talonid. Anterior lower molars with moderately elevated trigonids with essentially three low transverse crests defining two very small basins. Posterior wall of trigonids relatively flat and erect. Talonid basins of anterior lower molars large, relatively deep and enclosed. Weak hypoconulid formed by flexure of posterior crest of M_1, and slight medial elevation of posterior crest on M_2. External cingular crest developed about protoconid, extending lingually well below anterior crest of trigonid, very subdued posteriorly.

Discussion: The dental formula for *Torrejonia* is not known, but it is evident that there were at least three premolars, as well as three molars, and in all probability the formula corresponded to that for *Paromomys,* not as in *Phenacolemur. Paromomys* had an enlarged lower incisor, not nearly so procumbent as in *Phenacolemur*, followed by a moderately large single rooted tooth, presumably the canine, and a two rooted second premolar. In *Torrejonia* segments of two alveoli are seen anterior to P_3. Possibly these are both of P_2. There may have been a large incisor as in *Paromomys* but there is no incisor alveolus beneath the posterior premolars as in *Phenacolemur.*

P_3 is relatively much larger and more elongate anteroposteriorly than in *Paromomys*, and its greatest width is slightly more forward. This tooth in both forms shows a sharp anterior crest above, which part way down turns lingually and disappears. There is no definable parastylid on either. Both show a narrow, somewhat flattened posterior wall with a well defined posterolateral crest and a slight talonid. The talonid is relatively a little narrower in *Torrejonia.*

P_4 in *Torrejonia* is also relatively larger and more elongate than in *Paromomys,* and the greatest width is well forward, at the primary cusp rather than essentially across the talonid. In both forms the anterior crest, as in P_3, is sharp above and at its anterior extremity turns abruptly inward and disappears, but without a definable parastylid. The talonid of P_4 is a little larger and more deeply basined than in *Paromomys,* but shows a similar development of the posteroexternal (hypoconid) and posterointernal (entoconid) cusps. The posteroexternal cusp joins the well defined posteroexternal crest on the primary cusp. This crest is not so medially placed as in *Paromomys.* The posterointernal crest of the primary cusp in *Torrejonia* is double in its upper part but, as in *Paromomys*, there is no evidence of a metaconid, such as seen in *Palaechthon*, or still better developed in *Plesiolestes.*

The anterior molars M_1 and M_2 strongly resemble these teeth in *Paromomys* but M_1 is a little longer with respect to M_2 than in *Paromomys.* The paraconid of M_1 is conical, placed high and well forward. The trigonid of M_2 is more compressed anteroposteriorly with the paraconid small and close to the metaconid. The posterior or third small crest of the trigonid in both molars is better defined in *Torrejonia* and the posterior wall of the trigonid is somewhat flatter, or

less inflected, and appears more erect. An external cingular crest, not seen on the premolars, is developed around the protoconid and carried across the anterior surface of the molars well below the anterior crest of the trigonid, relatively a little lower with respect to this crest than in *Paromomys*. The lingual walls of the teeth are without a cingular crest.

The large talonid basins of the molars are deeper and more elongate than in *Paromomys*, in which respect there is a somewhat stronger resemblance to *Omomys*. A certain rugosity or folding of the enamel in the walls of the basin essentially matches in detail that in *Paromomys*, but is less emphasized. The hypoconid is prominent with strong oblique crests, the anterior showing a very small cuspule near its extremity with a slight notch separating it from the posterior wall of the trigonid. The entoconid is a little lower than the hypoconid and more smoothly crescentic. There is no conical hypoconulid but its position on M_1 is indicated by a flexure of the posterior rim of the talonid basin where it is joined by the posterolingual extremity of the decidedly weak posterior portion of the external cingular crest. On M_2 this position is denoted by a slightly raised portion of the posterior rim, which as in M_1 is a little more elevated than in *Paromomys*.

Torrejonia makes an approach toward *Palaechthon* in the relatively slender, elongate P_4, but lacks the parastylid and metaconid exhibited by the latter. Moreover, the narrow talonid of P_4 in *Palaechthon* is less basined but developed more as a high transverse crest posteriorly. P_3 is relatively very much smaller in *Palaechthon*. Resemblance in the lower molars is seen in the flat, relatively erect posterior wall of the trigonids and in the large, deeply basined talonids, but the trigonids in *Palaechthon* are relatively much more elevated with higher cusps and the talonid basins are less well closed lingually.

An isolated upper molar (fig. 2) believed to represent *Torrejonia* is of a size comparable to the molars in the lower jaw. Its form suggests the second rather than the first of the molar series, but this is uncertain. The tooth appears relatively short anteroposteriorly in comparison with its striking width. The outer cusps are conical and moderately high, much as in *Paromomys*, but perhaps a little better separated. The talon, however, shows a larger protocone, which would correspond to the larger talonid basins of the lower molars in *Torrejonia*. As in *Palaechthon*, the protocone is more medially placed, fore and aft, than in *Paromomys*. There are three crests extending laterally from the protocone, the median as a well defined rib toward the broad central basin, and the others toward the accessory cuspules. The small accessory cuspules are sharply distinct from the crests of the protocone, as well as from the outer cusps. The metaconule, though no larger than the protoconule, is, as in *Palaechthon*, much better defined than in *Paromomys*. The cingulum externally is essentially as in *Paromomys*, but is much weaker on the anterior wall of the tooth. Posteriorly the

cingulum is well developed but not so widely separated from the crest between the protocone and metaconule. On the posterior slope of the protocone the lingual extremity of the cingulum turns toward the apex of the protocone but does not actually reach it. In *Paromomys* the protocone is characterized by a prominent, elongate crest from the apex to the lingual extremity of the posterior cingulum. This crest is relatively much shorter in *Palaechthon*. The lingual wall of the Torrejon molar is only slightly bilobed and, as in Palaechthon, is not nearly so askew.

Torrejonia wilsoni new species
(Figs. 1 and 2)

Type: Left ramus of mandible, USNM No. 25255, including P_3-M_2.

Horizon and locality: Upper fossiliferous zone of the middle Paleocene Torrejon beds, Nacimiento formation. East branch of the Arroyo Torrejon, San Juan Basin, New Mexico.

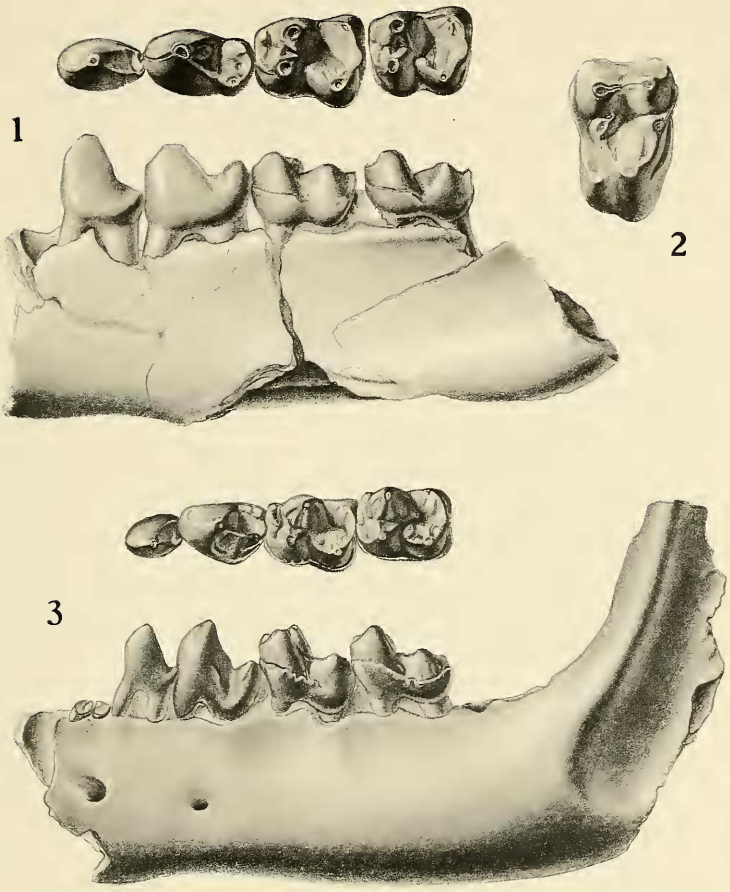
Specific characters: Size appreciably larger than *Paromomys maturus* Gidley (1932), much larger than the paromomyids *Palaechthon alticuspis* Gidley (1923) and *Plesiolestes problematicus* Jepsen (1930). A close approach is made in size of molars, particularly M_2, with the plesiadapid *Pronothodectes simpsoni* Gazin (1956) from the early Tiffanian of the Bison Basin, Wyoming. Other characters of specific importance not recognized.

Discussion: In addition to the isolated upper molar, USNM No. 25256 (fig. 2) discussed above, there is also an isolated M_2, USNM No. 25257, referred to this species. Both are from the upper level of the Torrejon in the west branch of the Arroyo Torrejon. The isolated M_2 is relatively unworn and slightly larger than this tooth in the type lower jaw. The grooves or rugosity on the lingual slope of the hypoconid are better developed than in the type and are also evident on the labial slope of the entoconid. There is, moreover, better evidence of a cuspule on the crista obliqua, but less evidence of an hypoconulid. The outer cingular crest is perhaps a little better defined posteriorly.

Measurements (in mm.) of lower teeth in *T. wilsoni* (USNM No. 25255, type) in comparison with those for a specimen of *P. maturus* (U.S.N.M. No. 9292).

	length	trigonid width	talonid width
P_3, *T. wilsoni* : *P. maturus*	2.6 : 1.8	1.5 : 1.3	— : —
P_4, *T. wilsoni* : *P. maturus*	3.3 : 2.8	1.9 : —	1.8 : 1.8
M_1, *T. wilsoni* : *P. maturus*	3.5 : 3.0	2.5 : 2.0	2.8 : 2.2
M_2, *T. wilsoni* : *P. maturus*	3.3 : 3.1	2.6 : 2.2	2.7 : 2.3

The isolated M_2 of *T. wilsoni* (USNM No. 25257) is 3.5 mm. long by 2.7 mm. wide at the trigonid and 2.9 mm. across the talonid. The isolated upper molar (USNM No. 25256) believed to be *T. wilsoni*



Figs. 1–2. *Torrejonia wilsoni,* new genus and species. 1, left ramus of mandible (U.S.N.M. No. 25255), with P_3-M_2, type specimen, occlusal and lateral views (×4). 2, right upper molar (U.S.N.M. No. 25256), occlusal view (×4).

Fig. 3. *Paromomys maturus* Gidley. Left ramus of mandible (U.S.N.M. No. 9292), occlusal and lateral views (×4).

Drawings by Lawrence B. Isham, scientific illustrator, Department of Paleobiology, U. S. National Museum.

is 2.8 mm. long anteroposteriorly across the external portion and 2.5 mm. long across the midsection. Its greatest transverse diameter perpendicular to the outer wall is 4.7 mm.

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